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Compliments of the Author.

K U M Y S S.

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KUMYSS.

HISTORICALLY, the study of kumyss is very interesting. Homer speaks of the kumyss-making Hippomolgi; we are justified in calling them kumyss makers, as Herodotus, describing the same northern tribes, tells us that the Scythians deprived their slaves of sight, in order to keep secret the process of making a drink from mare's milk. Virgil, to come down to the commencement of our era, sings of the tribe :

"Qui lac concretum cum sanguine potat equino."

The line, of course, may be interpreted to mean that whey was the potation; but, as all other authors who allude to a beverage made from mare's milk, leave no doubt that it was a vinous fermentation, we may infer that Virgil meant the latter. Descending to still more recent times, Father de Robinquis, who was sent as an ambassador to the East by Louis IX. of France, in the year 1253, gives a very accurate description of the manufacture of kumyss. The most remarkable fact in his statements is that regarding the quantity of the product—one chief whom he met receiving daily that made from the milk of a hundred mares. Marco Polo, the great Venetian traveler, writing a few years later, speaks of kumyss as a common drink, wholesome, nutritious, and possessing important medicinal properties. Pallas, who was sent by the Empress Catharine II. to visit the less-known portions of her dominions, and who is still one of our best authorities, gave considerable attention to the question of kumyss. He writes (Vol. I., p. 507, Paris ed., 1788) as follows: "As few mares give milk in winter, the Calmucks are obliged to content themselves, during the season, with that of the cow. They unanimously say that it is less

spirituous than that of the horse." This remark sufficiently disproves the opinion of those recent newspaper writers who describe kumyss made from cow's milk as an imitation. He gives an account of the process of manufacture, in these words: "To sour the milk they pour it into large leathern vessels, and place them, in winter, near the fire. The condition of these vessels often of itself suffices to sour the milk. They use also leaven made of coarse flour, very salt. They add, sometimes, some of the last fermentation, or curdled milk, from the stomach of a lamb. They do not cream the milk; but, on the other hand, they employ a dasher, but this only in winter, as in summer they put the milk into skin bags, which they shake two or three times a day." The above statements of Pallas apply to the Calmuck tribes; but as all the other Tartar tribes, the Crim Tartars, the Esbeks, the Nogai, the Kirghis, and others, all prepare it, there exists considerable difference in their methods. Until recent years it was not known that kumyss was made except among these tribes. The habits of these people show clearly why they are the sole kumyss makers. They are nomadic, lazy, neglectful of agriculture. Their wealth consists in herds of mares, the milk of which cannot be manufactured into cheese or butter, and which, owing to the large quantity of sugar it contains, ferments spontaneously. This they undoubtedly discovered by attempting to preserve the milk, for a day or two, in skin bags. From this step it is a short one to the discovery that the longer it was kept the more pleasant it became. Mrs. Guthrie, who visited the Crimea in 1795, writes: "On stopping at a village, the hospitable Tartars brought us a wooden dish of their favorite kumyss. The kumyss has a sourish-sweet taste by no means unpleasant to my palate." . . . But to return to our mare's milk. That fluid has long been known to yield an ardent spirit. But Pallas tells us that in his travels he met a horde of Tartars who possessed the secret of turning cow's milk into vinous fermentation, or, in other words, of converting it into kumyss. The account of Dr. Clarke, in his Russian travels, is too well known to need quotation, and gives us very little satis-

factory information. Atkinson, in his "Oriental and Western Siberia" (p. 280), gives a woodcut of a group of Kirghis with kumyss-bottle and bowl, and describes the dwelling of a great and wealthy chief in the steppe. "In another part of the *yourt*," he writes, "is the large leathern kumyss-sack, completely covered up with blankets to keep it warm and aid the fermentation. This is a most important piece of furniture in a Kirghis domestic establishment. I have seen one 5 feet 8 inches long and 4 feet 5 inches wide, with a leathern tube in one corner, about 4 inches in diameter, through which they pour the milk into the bag, and draw the kumyss out. A wooden instrument is introduced into the bag, the handle passing through the tube, not unlike a churning-staff. With this, the kumyss is frequently agitated. The bag is never washed out; it would be spoiled by doing so. Near the kumyss-bag stands a large leathern bottle, sometimes holding 4 gallons, often highly ornamented, as are the small bottles made to carry on the saddle.

"On entering a Kirghis *yourt* in summer, a Chinese bowl holding three pints of kumyss is presented to each guest. It is considered impolite to return the vessel before emptying it, and a good Kirghis is never guilty of this impropriety. They begin to make kumyss in April. The mares are milked at five o'clock in the morning, and the same hour in the evening, into large leathern pails, which are immediately taken into the *yourt* and the milk poured into the kumyss-bag. The first fourteen days after they begin making this beverage, very little of it is drunk, but, with fermentation and agitation, it is considered by this time in perfection, when it is drunk in great quantities by the wealthy Kirghis, as a man must have a large stud of brood-mares to afford a corresponding consumption of the beverage. Almost every Kirghis has a kumyss-bottle slung to his saddle, in summer, which he loses no opportunity of replenishing at every *aoul* he visits." I have quoted Atkinson at this length to avoid the necessity of quoting from our medical authorities, Dahl and Neftel, any accounts of the habits of the Kirghis, and the mode of preparation, as I wish to extract from

them simply their statement as to its therapeutic value. In an official report to the Russian Government, in 1840, Dr. W. F. Dahl, after describing the people and their method of manufacturing kumyss, continues :

“Peculiar as is the taste of kumyss, one soon becomes accustomed to it, especially if one tastes it for the first time when thirsty, or after violent exercise. It is then the most pleasant and refreshing of all drinks. The peculiar odor of kumyss is offensive to some persons ; but, if it is tasted under the circumstances just mentioned, no one will ever abandon it for any other sort of drink whatever. It is very refreshing and hunger-stilling, without being surfeiting. It only allays hunger without destroying the appetite, so that one can pass a long time without other food, and can also, while taking kumyss, eat just as much as at other times. Kumyss, too, has one very peculiar property which is difficult to explain, but which is confirmed by repeated experience : it is never surfeiting. One can, without any fear, drink as much as he will—an inconceivable amount—and yet always feel light and well. If one were to drink half the quantity of water, beer, or anything else, especially during the burning heat when one is forced to be on horseback, one would feel heavy, overfull, and weary. But every cup of kumyss gives new courage and strength. An intoxication such as is produced by wine never takes place after drinking kumyss, in whatever quantities you may ; the result is a scarcely noticeable exhilaration, and this only when it is taken in very considerable quantities, or, in delicate persons, when it produces an inclination to a refreshing sleep. . . . The first feeling after copious draughts is costiveness, without any other inconvenience or loss of appetite. The stool regulates itself in the course of a few days, but there is always a tendency to obstruction, and the excrement is hard and less abundant than usual. The urine at the same time alters in quantity and quality ; it is less abundant than usual, and generally discolored, with a strong sediment. It is remarkable how disproportionately slight the amount of urine is in comparison with the quantity of drink taken. Kumyss is, among the nomads, the

drink of all children, from the suckling upward, the refreshment of the old and sick, the nourishment and greatest luxury of every one. The secondary effect of kumyss shows itself in less than a week in a good nourishment of the whole body, an increase in strength and spirits, and a general feeling of health. The respiration is easier, the voice freer, the complexion brighter; the faces which have become pallid and pinched in winter are scarcely to be recognized in spring, so sudden is the transformation to a healthy appearance. It is, however, very doubtful whether any nourishment, after such long fasting, hunger and short provisions, as the nomads endure during the whole of the winter, would be suitable to their weakened frames or be able to restore them so quickly. After violent fatigues and hunger borne nobly for weeks, the Kirghis are careful to avoid excess of solid food, but indulge without fear in bags of kumyss.

"The diseases in which kumyss is beneficial are those where the body must be well nourished without loading the digestive organs. It seems, too, that kumyss is specially useful in chronic affections of the chest, not only in diseases of the lungs, but also of the bronchia and larynx. I will not assert that it can cure consumption and phthisis, but it suits these conditions better than any other nourishment, and may, even when the tendency is pretty well advanced, prevent the disease, especially if the cure can be kept up all summer, or if not prevent, at least delay it for some time. It is certain that among the Kirghis consumption and phthisis are very rare—much rarer than elsewhere; so, too, pneumonia, senile asthma, and dropsy of the chest. Of tubercular, pituitose, and other phthisis, I have seen no example among the Kirghis." Dr. Neftel, of this city, who in 1857, that is, twenty-three years after the visit of Dr. Dahl, was also sent by the Russian Government to the Kirghis steppe, in the district of Orenburg, confirms the observations of his predecessor. "Scrofulosis and rachitis are quite unknown among them; and what is still more remarkable, I had opportunity to observe not one single case of lung-tuberculosis, although I sought for such cases with the greatest attention." To

avoid repetition I will simply cite one case given by Dr. Neffle relating to kumyss treatment. "The patient, twenty-five years old, had always lived at St. Petersburg. Her physician there, a distinguished diagnostician, found tubercular infiltrations in both superior lobes of the lungs. During two years she coughed continually, with a muco-purulent expectoration often tinged with blood, and she became very emaciated. All other physicians consulted by the patient confirmed this diagnosis. During her first pregnancy the appearance of tuberculosis moderated, and the general condition improved; but, immediately after confinement, all the previous symptoms appeared with greater violence. The presence of cavities was clearly demonstrated, and a hectic fever set in. In this condition, the patient, by my advice, left the city, passed the whole summer in the steppe in a *kibitka*, and was methodically treated with kumyss. Her general condition gradually improved and when she returned to the city in the autumn she found herself nearly as before the pregnancy. The ensuing spring she again commenced the kumyss treatment, and I have lately received, here at Wurzburg, a letter from her husband, in which he informs me that his wife is completely cured, and even coughs no longer."

The most recent article on kumyss has been written by Dr. A. M. Campbell, of Mount Vernon, N. Y., in the *American Journal of Obstetrics*, October, 1880. His observations are limited to the study of kumyss in cholera infantum. He reasons as follows: "In a severe case of choleraic diarrhoea we derive but little aid from medication, the primary cause of the disorder being the food put into the child's stomach. These cases occur almost exclusively among fed children. Our aim is chiefly directed to finding something on which the infant can be nourished, and which will not increase the trouble already existing. In kumyss we have a food which children with high temperature not only take kindly, but crave, its slightly acid taste being grateful to their parched tongues. It is an absolutely non-putrefactive food, is free from sugar, and is rarely rejected even by the most irritable stomach." After citing

four cases successfully treated—cases, the types of many others—he continues: “Although I do not claim that kumyss is a panacea for every case of choleraic diarrhœa, I can say that we have in it a valuable aid, with which to treat this most formidable complaint.

. . . Its use in the early stages will aid in arresting the disease, by supplying nourishment which the infant can retain, and which will be readily absorbed. I can say for it that it has never failed me in any case of cholera infantum, except some in which well-marked brain symptoms already existed before it was administered, to such a degree as to preclude the possibility of a recovery. Even in these cases it is an advantage, for we are giving a food which will not be vomited, and which will satisfy thirst.”

Since the year 1875 I have been directing my attention to the study of milk, especially that of the cow, as an article of human food. My investigations naturally led me to the observation of kumyss, and I was much struck with the statements given by various travelers as to its therapeutic effects. Impressed with a conviction of its value in dietetics, I proceeded to make some experiments in producing it. The chief difficulty I found in the fact that mare’s milk could not be obtained in sufficient quantity for the purpose, while all the best kumyss of the Tartars is prepared therefrom. I sought consequently to ascertain the difference between the milks of the cow and of the mare. This again led me to form a classification which had never previously been made, namely, between the milk of the cud-chewers and that of the non cud-chewers. I found that the former contained more caseine and of a different nature, more fat, and less sugar. The difference in the caseine of the cud-chewer from that of the non cud-chewer is that the former variety coagulates into a hard rubber-like mass under the action of acids and of the digestive ferment, while that of the latter, under like conditions, never forms the large coagulum, but is precipitated in fine, easily diffusible flakes. From this, therefore, it follows that, to render the milk of the cow similar in its constituents to that of the mare, we have, first, to increase the amount of milk-sugar;

secondly, to decrease and modify the caseine. I do this as follows: To a given quantity of milk I add four per cent. of milk-sugar; take one-third of the milk, precipitate from it the caseine, and add the resulting whey to the milk I had taken it from; then to make with this the kumyss, I add a proper ferment, and during the coagulation of the caseine the fermenting mass is constantly kept in a state of agitation, which breaks up the caseine and leaves it in the condition which it presents in the milk of the non-ruminant animals.

I can say, for this preparation, that those who have been acquainted, by experience, with the Russian kumyss, declare that it is identical with the latter in all respects, except in the creosote odor which the Russian product derives from the smoke-stained skins in which it is manufactured and preserved.

It is quite needless for me to cite in detail cases illustrative of the benefits of kumyss as a food. In cases occurring where defective nutrition is a predominant feature, kumyss, with the exception of one or two isolated instances, has never failed in improving nutrition.

MOUNT VERNON, N. Y.

